

few minutes it seemed as though they had succeeded; but this only lasted for a very short time, and it was soon seen that something had gone hopelessly wrong.

THE following excursions have been arranged for by the Geologists' Association:—To Croydon, Shirley and the Addington Hills, May 7; to Grays, Essex, May 14; Sheppey, May 23.

MR. LANT CARPENTER asks us to state that in his article on Niagara in *NATURE*, vol. xxiii. p. 511, he attributed the article on the "Music of Niagara," in *Scribner's Magazine* for February, 1881, to Mr. Eugene Schuyler, whereas the author was Mr. Eugene Thayer, of Tremont Street, Boston, Mass.

THE additions to the Zoological Society's Gardens during the past week include a Silver Fox (*Canis fulvus*, var. *argentata*) from North America, presented by Mr. Robert Hunt L. B. Lydston Newman; a Vulpine Phalanger (*Phalangista vulpina*) from Australia, presented by Mrs. J. S. Henderson; a Goldfinch (*Carduelis elegans*), British, a Snow Bunting (*Plectrophanes nivalis*), European, presented by Mr. John Fletcher; an Eyed Lizard (*Lacerta ocellata*), South European, presented by Mr. James Wellford; an Indian Cobra (*Naia tripudians*) from India, presented by Mr. A. H. Jamrach; a Ludio Monkey (*Cercopithecus ludio*) from West Africa, on approval; two Humboldt's Lagothrix (*Lagothrix humboldti*), two Matamata Terrapins (*Chelys matamata*) from Upper Amazons, a Green-billed Toucan (*Ramphastos dicolorus*) from Guiana, three Saddle-billed Storks (*Xenorhynchus senegalensis*) from West Africa, three Roseate Spoonbills (*Platalea ajaja*) from South America, a Japanese Teal (*Querquedula formosa*) from North-East Asia, three Magellanic Geese (*Bernicla magellanica*) from the Falkland Islands, purchased; a Reeves' Muntjac (*Cervulus reevesi* ♂) born in the Gardens.

### OUR ASTRONOMICAL COLUMN

THE INTRA-MERCURIAL PLANET QUESTION.—It may be remembered that when the late Prof. Watson claimed to have seen an unknown object near the star  $\theta$  Cancri during the totality of the eclipse of July 29, 1878, it was objected with respect to his supposition as to its being an intra-Mercurial planet, that he had not anywhere mentioned his having seen the object at the same time as the star, or as well as the star, consequently that his circle-reading may have really applied to the latter. From Prof. Watson's official report on his observations, just published with many others, by the Superintendent of the Naval Observatory at Washington, it appears that this objection is no longer valid. Prof. Watson writes: "Between the sun and  $\theta$  Cancri, and a little to the south, I saw a ruddy star whose magnitude I estimated to be 4½. It was fully a magnitude brighter than  $\theta$  Cancri, which I saw at the same time, and it did not exhibit any elongation, such as might be expected if it were a comet in that position. The magnifying power was 45 and the definition excellent. My plan did not provide for any comparison differentially with a neighbouring star by micrometric measurement, and hence I only noticed the relation of the star to the sun and  $\theta$  Cancri." It is difficult to understand how the observation can be explained, except by admitting the existence of an unknown body in the vicinity of the star, or by imputing to the deceased astronomer a want of *bona fides*, for which we do not believe there is the slightest excuse; he was too well known and respected to allow of such an imputation.

The solar eclipse of May 17, 1882, will afford the next opportunity of repeating observations of the kind made by Prof. Watson in 1878, but the duration of totality will nowhere exceed 1m. 48s., and in the most accessible portion of the central line will amount to 1m. 15s. only.

THE TRANSIT OF MERCURY, NOVEMBER 7, 1881.—With the positions of the Sun and Mercury given in the *Nautical Almanac* from Leverrier's Tables, and the diameters of those bodies obtained by the same astronomer from the discussion of former transits, the following will be the geocentric Greenwich times and the reduction-formulæ for the internal contacts during the transit of Mercury on November 7 in the present year:—

First internal contact, Nov. 7, 10h. 18m. 15s.  $+ [1^{\circ}42'05] r \sin l$   
 $- [1^{\circ}54'04] r \cos l \cos (L + 55^{\circ}34'2)$   
 Last internal contact, Nov. 7, 15h. 35m. 28s.  $+ [0^{\circ}91'36] r \sin l$   
 $+ [1^{\circ}63'02] r \cos l \cos (L - 35^{\circ}23'2)$ .

Where  $r$  is the radius of the earth at the place,  $l$  its geocentric latitude, and  $L$  the longitude from Greenwich, reckoned towards the east. The quantities in square brackets are logarithms of seconds of time.

It will be seen that the transit will be invisible in this country, and will be best observed from the Australian observatories. At the Cape of Good Hope the sun will not rise till about four minutes after the second internal contact has taken place. At Madras he will be above the horizon before the middle of the transit, which ends there about 20h. 59m.

As an example of the use of the above formulæ we may compute the local mean time of first internal contact for the Observatory at Melbourne. The longitude of this observatory is 9h. 39m. 54s. 8 E., or in arc  $144^{\circ}58'7$ , and the geographical latitude is  $-37^{\circ}49'9$ . From Bessel's Table in the *Berliner Jahrbuch* for 1852, we find  $\log. r = 9.9999$ , and the reduction of latitude,  $11'1$ , so that  $l = -37^{\circ}38'8$ .

Constant + $1^{\circ}42'05$	Constant + $55^{\circ}34'2$	Constant - $1^{\circ}54'04$
$r \dots \dots 9.9999$	Long. $\dots \dots 144^{\circ}58'7$	$r \dots \dots 9.9999$
$\sin l \dots \dots -9.7859$	$A \dots \dots 200^{\circ}32'9$	$\cos l \dots \dots +9.8986$
$-1.2063$		$\cos A \dots \dots -9.9715$
$-16s.08$		$+1.4104$
		$+25s.73$
		$-16s.08$
		$+9s.65$
	Geocentric time $\dots \dots 10 \ 18 \ 15.8$	
	G.M.T. $\dots \dots 10 \ 18 \ 25.5$	
	Longitude E. $\dots \dots 9 \ 39 \ 54.8$	

Melbourne mean time 19 58 20.3

A NEW COMET.—The Smithsonian Institution telegraphs the discovery of a comet by Mr. Lewis Swift on the morning of the 2nd inst. in the constellation Andromeda; motion slow, southwards.

### GEOGRAPHICAL NOTES

WE understand that the Council of the Geographical Society have recently voted a contribution of 100*l.* towards the expenses of the Palestine Exploration Fund's Expedition to Eastern Palestine.

THE May number of the Geographical Society's *Proceedings* contains Mr. James Stewart's paper on Lake Nyassa and the water-route to the lake-region of East Africa, with a map of the north end of Nyassa. A note afterwards given embodies recent information from Livingstonia as to a serious depression in the level of the lake, which threatens to make the south end, as well as the Upper Shiré, unnavigable, and by consequence detract very seriously from the value of this route. Col. Tanner's paper on Kafiristan is also given, with a map of that and the adjacent region. Some account is furnished of Dr. Junker's journey in the Nyam Nyam country from the traveller's letters to Dr. Schweinfurth and Signor Gessi. Reference is again made in the Geographical Notes to the late Capt. Wybrants' expedition to South-East Africa, but complete details of its disastrous ending are still wanting, which seems the more remarkable as the lamented leader died as far back as November 29, 1880. An interesting note deals with Dr. Kirk's recent visit to the Dar-es-Salaam district of East Africa, and it is also stated that the Rev. T. J. Comber is about to make another attempt to reach Stanley Pool by the Makuta route, while one of his companions will follow the line of the Congo. The remaining notes refer to Major J. Biddulph's work on the tribes of the Hindu Kush, and Père Desgodins' labours in the cause of geography on the eastern and southern frontier of Tibet.

AT the evening meeting of the Geographical Society on Monday next Mr. E. Whymper will read a paper describing the geographical results of his journey among the Andes of Ecuador.

THE new volume of the *Geographisches Jahrbuch* is of great value to scientific geography in its most comprehensive acceptation. Dr. Behm has been compelled to retire from the editorship, and is succeeded by Prof. H. Wagner of Göttingen, who, we have no doubt, will maintain the *Jahrbuch* at its previous high standard. The first part is devoted to the various geographical sciences. The first paper is by Prof. Zöppritz, "On the Present Standpoint of Physical Geography." This is followed by an account of recent researches in geographical meteorology by Dr. Haan; and papers on the Geographical Distribution of Animals and of Plants by Dr. Schwarda and Dr. Oscar Drade respectively. Prof. Bruhns summarises recent work in Europe in the measurement of degrees, and Herr Auwers gives the latitudes and longitudes of 144 astronomical observatories. Prof. F. v. Fritsch brings together recent investigations on the geographical distribution of geological formations all the world over; while Dr. v. Scherzer has his usual account of the world's commerce,\* and Dr. Gerland summarises recent advances in ethnological research. In the second part, which deals with general matters, Dr. Wagner has a thoughtful and useful article on the development of *Methodik* in geography; while, along with Herr Wichmann, he brings together a good deal of information on geographical societies, congresses, and journals. Thus it will be seen the new volume contains much matter of permanent interest.

WE have received Nos. 6, 7, and 8 (in one thick volume) of the *Bulletin* of the Union Géographique of the North of France. M. Leon Lacroix has a long paper describing a plan for the exploration of Central Africa, by the Wellé, a project we should much like to see carried out. M. Alf. Renouard, in a paper on the Geography of Flax, brings together much curious and useful information. Dr. Harmand's paper on the Races of Indo-China ought to interest ethnologists. Among the other contents are papers on the French in Indo-China, by M. Suerus; Syria in 1860, by M. Huberdeaux; and a note on the Isthmus of Panama, by M. V. Duburcq.

THE principal paper in the January number of the *Bulletin* of the Paris Geographical Society (just received) is one of much research, by M. Dutreuil de Rhins, on the routes between China and India.

THE *Mittheilungen* of the Vienna Geographical Society contain an account of a botanical excursion in the north of the Caucasus, by M. P. Muromtsoff, and a paper on the Floods of the Winter of 1880-81, by Baron Stefanovic von Vilovo.

UNDER the title of "Istruzioni Scientifiche dei Viaggiatori," the Italian Ministry of Agriculture, Industry, and Commerce have issued a very full and carefully compiled manual of information and instruction for travellers, edited by Signor Arturo Issel, with the collaboration of several specialists. The manual seems to us to combine the best features of all its predecessors in other languages, and ought to be of real service to all travellers who know Italian. It includes astronomy, meteorology, geography, and topography, deep-sea exploration, geology and palæontology, anthropology and ethnology, zoology, botany, and mineralogy. It is published under the auspices of the Italian Geographical Society.

HEFT 4 of Band ii. of the *Mittheilungen* of the German African Society contains communications from Dr. Büchner and Herr Flegel. The former has been doing a considerable amount of exploration between the capital of Muato Janvo's kingdom and the Congo, though his progress has been hindered by the usual African difficulties. His collections have been very numerous; unfortunately several boxes of them have been lost in the vessel in which they were being brought home, which was wrecked during the recent gales in the Channel. Herr Flegel has been doing some successful work on the lower and middle Niger.

PROF. GIUSEPPE DALLA VEDOVA has published the address he gave on the inauguration of the Chair of Geography at the University of Rome in November last. The subject is the Popular and the Scientific Conception of Geography. He shows that while the popular idea has its uses, the scientific conception is the only basis on which the subject can be studied with profit. He insists on the fact which has been frequently expounded in these pages, that geography has really become a sort of meeting-place for all the sciences, and that while topography may form the groundwork, it requires a knowledge of most of the physical and biological sciences to understand how the surface of the earth has reached its present condition.

DR. OSCAR LENZ has arrived in Berlin, where he has been lecturing on his journey across the Sahara to Timbuctoo.

AFTER all there seems to be little doubt that the news of the massacre of Col. Flatters and the other members of the Trans-Saharan Expedition is too true. Of course the project of a railway across the Sahara must be abandoned, in the meantime at least.

FROM *Les Missions Catholiques* we learn that news has at length been received respecting Père Law's expedition from Gubuluwayo, in Matabele Land, to Umzila's country, which was known to have met with some misfortune on the road. After passing the Insimbi Mountains the party reached the Great Sabi River, on the lower course of which we presume that Capt. Phipson-Wybrants died. The expedition journeyed, with their heavy waggon, along the left bank of the Sabi, meeting with country so difficult to traverse that in some parts they had to hew out of the rock a road for their waggon. Progress in this manner was terribly slow, and when that part of the Mashona country which owns some sort of allegiance to Umzila was reached, difficulties increased, as the natives did all they could to hinder their passage. Eventually on August 7, in a rugged pass where, surrounded by Mashonas, the missionaries were all doing their utmost to cut a road for the waggon, Père Wehl, by an accident not very clearly explained, got separated from his companions and was never seen again, though later news seems to have reached Gubuluwayo of his safety among a friendly tribe. Père Law and the rest of the party not unnaturally took fright at this, and leaving their waggon, escaped from their savage tormentors in the night. After about a fortnight's march they contrived to reach Umzila's kraal in a state of great exhaustion from fever and fatigue. They of course had to abandon almost all their property with the waggon, but further supplies have since been sent to them from Gubuluwayo.

PÈRE DEPELCHIN, the head of the mission station at Gubuluwayo, has been for some time absent on an expedition beyond the Zambesi, and from his long silence it was thought that he too must have met with some serious accident. He appears, however, to have reached in safety an out-station at Tati in Matabele Land, but no account of his adventures has yet been received.

MR. MCCALL, of the Livingstone (Congo) Inland Mission, is said to have formed a station at Manyanga, some 200 miles up the Congo, above the Vellala Falls, and he has no doubt about being able to reach Stanley Pool this year. The comparatively rapid progress thus made by following the right bank of the Congo will probably induce the Baptist Missionary Society's party at San Salvador to alter their tactics and follow the line of the river, instead of wasting their energies in fruitless attempts to make their way by land through the hostile Makuta towns to Makwekwe, on the left bank of the Congo, above Manyanga, and so on to Stanley Pool.

THE French Geographical Society held its annual meeting on Friday, April 29, when Admiral La Roncière le Noury was elected president. On the occasion of a proposal to erect a monument to Col. Flatters and his companions it was resolved to inscribe on tablets the names of all the martyrs of geography who have lost their lives in any exploration in which the French Geographical Society has been interested.

DR. O. F. VON MÖLLENDORFF has just published separately at Berlin (Reimer) two maps which have been drawn from his surveys by Dr. Kiepert for the Berlin Geographical Society's *Zeitschrift*. One is an original map of the hill-country north and west of Peking, while the other embodies routes in the Chinese province of "Dshy-li" and environs of Tientsin. Dr. Möllendorff, as we have before mentioned, claims to be an authority on the subject of the transliteration of Chinese sounds, but we doubt if many people in this country will recognise in "Dshy-li" the name of the metropolitan province (Chihli), and yet the maps are issued with English titles.

### THE FUTURE DEVELOPMENT OF ELECTRICAL APPLIANCES<sup>1</sup>

THE lecturer began by referring to our obligations to laboratory workers and the necessity for a larger endowment of original research. The applied science of the future lies in—

<sup>1</sup> Abstract of a lecture delivered by Prof. John Perry at a meeting of the Society of Arts, March 24.